

Landsat Advisory Group Update

Feb. 3, 2015

Kass Green

LAG Membership 2014

Name	Organization
Kass Green (LAG Co-Chair)	Kass Green & Associates
Roger Mitchell (LAG Co-Chair, NGAC Member)	MDA Information Systems LLC
Peter Becker	ESRI
John Copple	Sanborn Map Co.
Joanne Gabrynowicz (NGAC Member)	University of Mississippi
Jack Hild (NGAC Member)	DigitalGlobe, Inc
Rebecca Moore	Google, Inc.
Michele Motsko (NGAC Member)	NGA
Tony Spicci (NGAC Member)	State of Missouri
Cory Springer	Ball Aerospace & Technologies Corp.
Julie Sweetkind-Singer (NGAC Member)	Stanford University
Tony Willardson	Western States Water Council
Darrel Williams	Global Science & Technology, Inc.

2014 NGAC Guidance

Landsat Advisory Group

The NGAC Landsat Advisory Group (LAG) will provide advice to the Federal Government, through the NGAC, on the requirements, objectives and actions of the Landsat Program as they apply to ongoing delivery of societal benefits for the Nation and the global Earth observation community. The LAG is requested to provide advice and recommendations on Landsat-related issues for consideration by the NGAC, including the following:

- Review and update the 2012 LAG paper, “The Value Proposition for Ten Landsat Applications.” The 2012 paper documented an estimated \$178M to \$235M in annual cost savings experienced by federal and state government agencies within ten categories of Landsat data use. Since the 2012 cost savings estimates were compiled by the LAG, the USGS has gathered additional information through a Landsat user survey, a preliminary collection of Landsat-user case studies, and a pilot project on remote sensing user requirements. The USGS will share this information with the LAG to assist in updating the examples used in the 2012 paper, refining the list of user applications within and beyond government agencies, and enhancing the Landsat value summary.

***FGDC Guidance to NGAC, March 2014**

Updated LAG Report

- Adds 5 new operational Landsat users and strengthens value statements.
- Several of the new case studies were established from contacts made at the last LST meeting in Corvallis.
- Thank you LST, especially
 - Glenn Bethel of USDA
 - Frank Avila of NGA
 - Larisa Serbina of USGS
 - Jim Hipple of USDA

Value of Landsat

“The paper establishes that the \$350 million to over \$436 million economic value of just one year of Landsat data far exceeds the multi-year total cost of building, launching, and managing Landsat satellites and sensors. It can be expected that these savings, and others not addressed here, will continue to accelerate.”

<https://www.fgdc.gov/ngac/meetings/december-2014/ngac-landsat-economic-value-paper-2014-update.pdf>

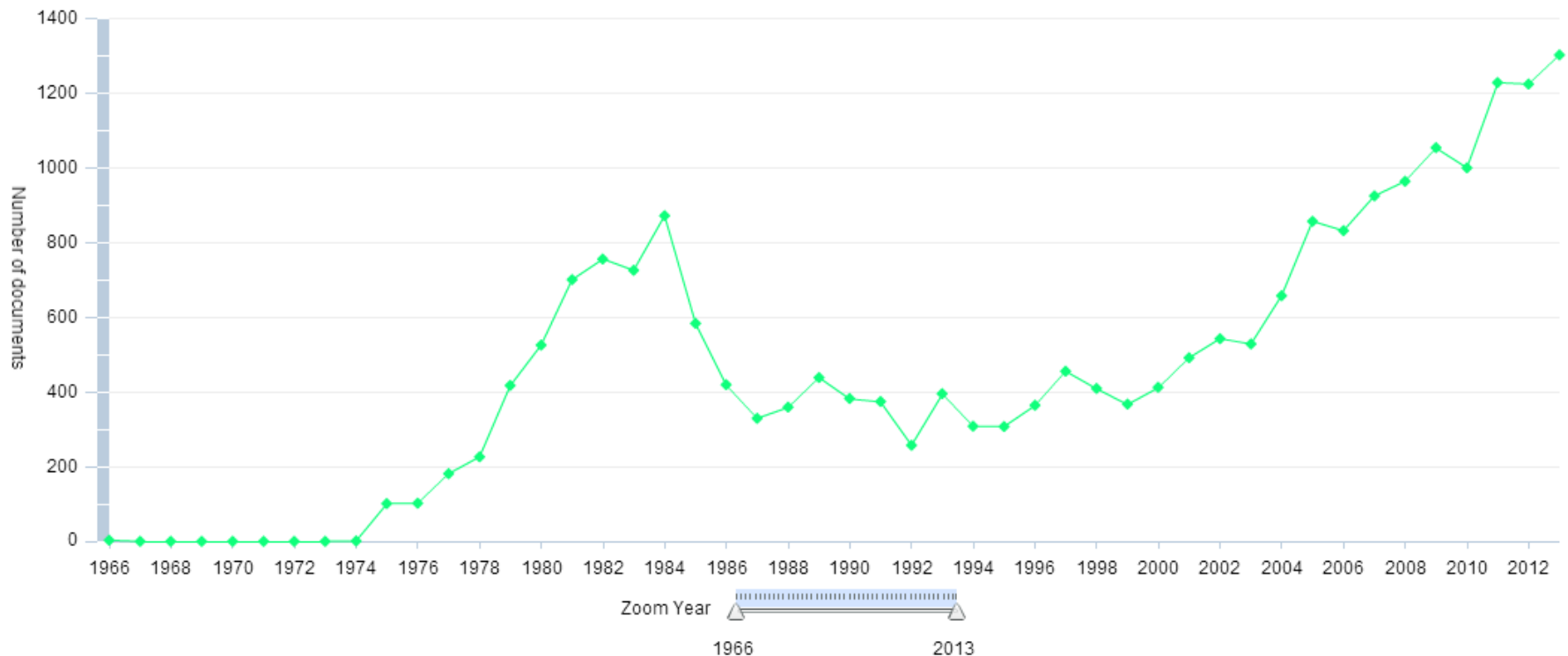
Summary of Landsat Value Studies

- 2014 LAG Report references 3 major reports that establish annual benefit of Landsat is from \$1 to 2.2 billion/year:
 - 2007 ASPRS survey of 1,295 users stated economic value of Landsat is worth over **\$936 million/yr**
 - 2012 USGS report by BAH – economic benefit of all the major applications of Landsat estimated at **\$1.7 billion/yr**
 - 2013 USGS survey of 11,275 users found the economic benefit of Landsat to be **\$2.2 billion/yr**
- In a 2014, OSTP study of 362 Earth Observing systems, Landsat was ranked the 3rd most important, after GPS and NEXRAD.

Non Economic Value

- Several humanitarian groups including the US Holocaust Memorial Museum's Center for the Prevention of Genocide¹¹, Amnesty International¹², and the Satellite Sentinel Project¹³ use Landsat imagery to document human rights violations.
- To great media acclaim, Google released Landsat Timelapse in 2013 which allows anyone to easily zoom and browse through this interactive global animation - perhaps the most comprehensive picture of our changing planet ever made available to the public. It receives 80,000 views per month, a year and a half after its release date. On May 5, 2014, Timelapse won the Webby People's Choice Award¹⁵ for "Best Use of Video or Moving Images on the Web."
<https://earthengine.google.org/#intro/LasVegas>

Scientific Value



Number of documents referencing Landsat. Analyzed search results from Scopus database on June 18, 2014.

Efficiency Savings with Landsat

These sixteen Landsat applications alone produce savings of \$350 million to over \$436 million per year for US Federal and State governments, NGO's and the private sector.

Landsat Application	Estimated Annual Efficiency Savings
1. USDA Risk Management Agency	over \$100 million
2. NGA Global Shoreline	over \$90 million (one time)
3. Monitoring Consumptive Outdoor Water Usage	\$20 - \$73 million
4. U.S. Government Mapping	over \$100 million
5. Forest Health Monitoring	\$12 million
6. Wildfire Risk Assessment (Verisk)	\$25-50 million (one time)
7. National Agricultural Commodities Mapping	over \$4 million
8. Vineyard Management and Water Conservation (Gallo)	\$3-5 million/year
9. Waterfowl Habitat Mapping and Monitoring (DU)	\$1.9 million/year
10. Flood Mitigation Mapping	over \$4.5 million
11. Forest Fragmentation Detection	over \$5 million
12. Forest Change Detection	over \$5 million
13. World Agriculture Supply and Demand Estimates	over \$3 - \$5 million
14. Landsat Support for Fire Management	\$28 - \$30 million
15. Coastal Change Analysis Program	\$1.5 million

Report Quotes

- “Without Landsat it is conservatively estimated that USDA’s Risk Management Agency would have to raise premiums for more than 200,000 policies equal to \$300M annually.”
- “At Gallo, everyone understands the value of Landsat in their operations, from the vineyard manager up to the Vice President level,” states Martin Mendez-Costabel, Gallo’s Manager of GIS and remote sensing. Without Landsat Gallo would need to “create a separate company to develop, build and collect airborne thermal imagery – an endeavor estimated to cost at least \$3-5 million/year. “

Report Quotes

- “The cost for Duck’s Unlimited to acquire a similar footprint of moderate or high resolution satellite imagery to replace Landsat is estimated to be over \$1,900,000 annually.”
- “It is estimated that conservatively the economic value of FireLine is \$50-100 million, and the Landsat contribution to this value is about 25% - \$25-50 million.”
- “The estimated annual cost savings to NGA for using Landsat data vs other comparable information sources is roughly \$70 million dollars/year.”

“Our Congressional Affairs staff are already using the paper in the briefing materials for tomorrow's Federal budget roll-out. The LAG comes through again!”

- Sarah Ryker, USGS Deputy
Associate Director for
Climate & Land Use Change